

# Pioneer Power & Light Company

*Power and Light for the Public*

104 North Main Street • P.O. Box 309

Westfield, WI 53964-0309

(608) 296-2149

Records  
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WISCONSIN PUBLIC SERVICE

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August 21, 2001

Ms. Terri Kosobucki  
Public Service Commission of Wisconsin  
610 North Whitney Way  
P.O. Box 7854  
Madison, WI 53707-7854



RECEIVED

AUG 22 2001

Dear Terri:

Electric Division

Enclosed please find four copies of Preventative Maintenance Plan for each, Pioneer Power & Light and Westfield Electric Company. Please accept our apology for the delay in submitting these reports.

Thank you.

Yours very truly,

*James A. Dahlke, C.P.A.*

James A. Dahlke, C.P.A.

Enclosures  
JAD:de

**RECEIVED**

AUG 27 2005

Electric Division

# **PREVENTATIVE MAINTENANCE PLAN**

**PIONEER POWER & LIGHT COMPANY**

**104 North Main Street**

**P. O. Box 309**

**Westfield, WI 53964-0309**

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## **I. Preventative Maintenance Plan**

The PSC 113.0607 rule reads:

Appropriate inspection and maintenance: system reliability.

(1) **PREVENTATIVE MAINTENANCE PLAN.** Each utility or other person subject to this chapter, including persons who own electric generating facilities in this state who provide service to utilities with contracts of five years or more, shall develop and have in place its own preventative maintenance plan. This section is applicable to electric generating facilities as set forth at s. 194.491(5)(a)(1), Stats. Each plan shall include, among other things, appropriate inspection, maintenance and replacement cycles where applicable for overhead and underground distribution plant, transmission, generation\* and substation facilities.

(2) **CONTENTS OF THE PLAN.** (a) *Performance standard.* The Preventative Maintenance Plan shall be designed to ensure high quality, safe and reliable service, considering: cost, geography, weather, applicable codes, national electric industry practices, sound engineering judgment and experience.

*\* PSC staff interpretation is that generation applies to individual generators equal to or greater than 50 MW.*

## **II. Inspection Schedule and Methods:**

The purpose of this plan is to maintain or improve the electrical system reliability with the objective of increased loyalty and satisfaction from our constituents. The goals are to meet and exceed the schedules established in this plan.

Exception reporting (inspected equipment not in good condition) will be the method of documentation on all inspection forms.

The scope of this plan is traditional and uses proven maintenance techniques. Unique operating and maintenance philosophies have not been considered. Also, manufacturer defects will be dealt with as they are communicated to this utility.

SCHEDULE:	MONTHLY	ANNUAL	EVERY 5 YEARS
SUBSTATIONS	X	X	
DISTRIBUTION (OH & UG)			X

The inspection of Distribution facilities will be by individual substation circuits on a 5-year cycle such that the entire system will be inspected every 5 years. Inspector instructions for inspecting all facilities and forms are included with the plan.

METHODS: Four criteria groups will be used to complete the inspection of all facilities.

1. RFI - Radio Frequency Interference, a byproduct of loose hardware and connections, is checked using an AM radio receiver.
2. SI - structural integrity of all supporting hardware including poles, crossarms, insulators, structures, bases, foundations, buildings, etc.
3. Clearance - refers to proper spacing of conductors from objects, trees and other utility cables.
4. EC - equipment condition on non-structural components such as circuit breakers, transformers, regulators, reclosers, relays, batteries, capacitors, etc.

### **III. Condition Rating Criteria:**

This criterion, as listed below, establishes the condition of a facility and also determines the repair schedule to correct deficiencies.

- 1) Good condition but aging
- 2) Non-critical maintenance required - normally repair within 12 months
- 3) Priority maintenance required - normally repair within 90 days
- 4) Urgent maintenance required - report immediately to the utility and repair normally within one week

### **IV. Corrective Action Schedule**

The rating criteria as listed above determine the corrective action schedule.

### **V. Record Keeping**

All inspection forms and records will be retained for a minimum of 10 years. The inspection form contains all of the required critical information i.e. inspection dates, condition rating, schedule for repair and date of repair completion.

### **VI. Reporting Requirements**

A report and summary of this plan's progress will be submitted every two years with the first report due to the Commission by February 1, 2003. The report will consist of a letter documenting the percent of inspections achieved compared to the schedule and a description maintenance achieved within the scheduled time allowance.

## **VII. DISTRIBUTION - OVERHEAD INSPECTION GUIDE**

### **STRUCTURE**

Pole Condition  
Pole Leaning  
Crossarm Condition  
Insulators, Deadend, Pin  
Excess Fill or Soil Removal  
Pole Steps  
Grounds Intact  
Ground Molding  
Down Guys  
Guy Markers  
Guy Bonding/Insulator  
Signage - Location Number, Warning Sign  
Customer Equipment  
Conductor  
Tie Wires  
U Guard/Conduit Condition

### **EQUIPMENT**

- Transformers
  - Oil Leaks
  - Bushing Condition
  - Grounding/Bonding
- Capacitors
  - Fuses Blown
  - Bushing Condition
  - Oil Leaks
  - Tank Bulged
  - Switches, Oil, Vacuum
  - Control Conduit/Wiring
  - Grounding/Bonding
- Cutouts
  - Insulator Condition
  - Fuse Size Tag

## **VII. DISTRIBUTION - OVERHEAD INSPECTION GUIDE (con't)**

### **EQUIPMENT (CON'T)**

- Arrestor
  - Insulator Condition
  - Connections
  - Ground Lead Disconnection
- Cable Terminators
  - Insulator Condition
  - Grounding/Bonding

### **CLEARANCES**

- Ground Line
- Buildings, Bridges, Swimming Pool, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Transmission Lines
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
  - Clearance From Line
  - Vines on Poles
  - Danger Trees

### **RFI CHECK**

- OH system with AM radio as each circuit is inspected



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[illegible]

## VIII . DISTRIBUTION - UNDERGROUND INSPECTION GUIDE

### STRUCTURAL (Exterior & Interior) Transformer, Primary Pedestal, Secondary Pedestal, Switchgear.

- Enclosure Condition
- Level/Leaning
- Security
- Grade/Accessibility (Shrubs, Customer Facilities, Fill/Excavation)
- Numbering
- Voids/Gaps
- Signage - Location Number, Warning Sign
- Pad/Vault Condition

### EQUIPMENT

- Transformers
  - Oil Leaks
  - Bushing Condition
  - Grounding/Bonding
  - Elbows
  - Arrestors
  - Feed-Through
  - Cable Condition
  - Secondary Connections
- Primary Pedestals
  - Elbows
  - Junction Condition
  - Grounding/Bonding
- Secondary Pedestals
  - Secondary Connections
- Switches - URD Switchgear
  - Insulator Condition
  - Operating Handle Security
  - Linkage
  - Grounding/Bonding
  - Switch Number/Fuse Size & Number

## Circuit

Corrected by

## **IX. DISTRIBUTION SUBSTATION - MONTHLY INSPECTION GUIDE**

### **TRANSFORMER MAIN TANK:**

- Oil in bushings
- Bushing and arrestor porcelain
  - Cracks or chips
  - Rust or dirt
- Oil leaks
  - Main tank
  - Sample valves
  - Radiators
- Tank pressure
- Tank oil level
- Temperature gauge

### **TRANSFORMER LTC or VOLTAGE REGULATORS:**

- Tank oil level
- Drag hand positions
- Operation count

### **FEEDER CIRCUIT BREAKERS / RECLOSERS**

- OPEN/CLOSED indicator
- Operations counter
- Bushings and supports
  - Cracks or chips
  - Rust or dirt
- Line and load side disconnect switches
  - Labeled properly
  - Aligned properly
  - Handles grounded
- Tank oil leaks
- Reset switch
- Vents clean

## **IX. DISTRIBUTION SUBSTATION - MONTHLY INSPECTION GUIDE (con't)**

### **HIGH AND LOW VOLTAGE BUSS WORK:**

- Bushing, insulator, arrestor, and support insulators
- Chips or cracks  
Rust or dirt
- Bird nests
- Cable terminators  
Leaking fluid  
Cracks or chips

### **MANUAL SWITCHES:**

- Properly labeled
- Ground connections
- Positioning and alignment
- Bushing and support insulators  
Cracks or chips  
Rust or dirt

### **YARD AND FENCE:**

- Fire extinguisher charged
- Fence ground connections
- Fence secured
- Security and emergency lights
- Site base and grade
- Standing water
- Warning signs

# MONTHLY DISTRIBUTION SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

**RATING: 1 2 3 4**

**(Circle One)**

[illegible]

## TRANSFORMER LTC or VOLTAGE REGULATORS

**RATING: 1 2 3 4**

**(Circle One)**

[illegible]

SUBSTATION:

[illegible]

# MONTHLY DISTRIBUTION SUBSTATION INSPECTION FORM

SPECTED BY:

DATE:

SUBSTATION:

## HIGH & LOW VOLTAGE BUSS WORK

RATING: 1 2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports				
Bird Nests				
Transformer Bushings				

## MANUAL SWITCHES

RATING: 1 2 3 4 (Circle One)

Properly Labeled				
Ground Connections				
Positioning and Alignment				
ishings and Supports				

## YARD & FENCE

RATING: 1 2 3 4 (Circle One)

Fire Extinguisher Charged				
Fence Ground Connections				
Fence Secured				
Security and Emergency Lights				
Site Base and Grade				
Standing Water				
Warning Signs				



## **X. Substation (Distribution) - Annual Inspection Guide**

- Check equipment for level
- Check condition of concrete pads
- Nameplate legible
- Equipment paint condition
- Proper equipment ID labels

# ANNUAL DISTRIBUTION SUBSTATION INSPECTION FORM

Date \_\_\_\_\_ Inspected by \_\_\_\_\_ Substation \_\_\_\_\_

EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA						COMMENTS	MAINTENANCE COMPLETED	
	Check equipment for level	Check condition of concrete pads		Nameplate legible	Equipment paint condition	Proper identification labels		RFI scans and checks	Date Item Corrected
Transformer									
LTC or regulators									
High Voltage Breaker									
Feeder CBS / Reclosers									
Switches									
Transmission line RFI									